

A taxonomic study on the genus *Rhopalovalva* Kuznetzov, 1964 from China (Tortricidae: Olethreutinae)

AIHUAN ZHANG & HOUHUN LI

Department of Biology, Nankai University, Tianjin 300071, P. R. China;
e-mail: lihounun@nankai.edu.cn

Abstract. Seven species of the genus *Rhopalovalva* Kuznetzov from China are treated in this paper. Descriptions of two new species *R. ovata* sp. n. and *R. orbiculata* sp. n. are given, with genital structures illustrated. A key to all known Chinese species is provided.

Key words. Lepidoptera, Tortricidae, Olethreutinae, *Rhopalovalva*, new species, China.

Introduction

Kuznetzov erected the genus *Rhopalovalva* in 1964 for *Eudemis lascivana* Christoph, 1881 and transferred three more species to the genus: *R. exartemana* (Kennel, 1901), *R. cordelia* (Meyrick, 1935), and *R. grapholitana* (Caradja, 1916), but Clarke (1958) synonymized *A. cordelia* with *A. grapholitana*. Later, Diakonoff (1973) and Kuznetzov (1976b) transferred one species each from *Acroclita* Lederer, 1859 and *Phoxopteryx* Sodoffsky, 1837 to *Rhopalovalva*, viz. *R. catharotorna* (Meyrick, 1935) and *R. pulchra* (Butler, 1879). In addition, Oku (1974) described *Rhopalovalva amabilis* from Japan. Thus, up until now, six valid *Rhopalovalva* species were recognized. They occur in Korea, Japan, and Russia, and five of them have been recorded from China (Razowski 1999; Liu & Li 2002). In the present paper, two new species are described from China. The type specimens are deposited in the Department of Biology, Nankai University, Tianjin, China. The research was supported by the National Natural Science Foundation of China for the Special Program.

Rhopalovalva Kuznetzov, 1964

Rhopalovalva Kuznetzov, 1964: 883. Type species: *Eudemis lascivana* Christoph, 1881.

Key to Chinese species of *Rhopalovalva* based on male genitalia characters

- | | |
|--|-----------------------------|
| 1. Cucullus ventrally with process spinous | 2 |
| - Cucullus ventrally with process not spinous | 3 |
| 2. Sacculus angle with slender hairy lobe; valva constricted deeply | <i>R. catharotorna</i> |
| - Sacculus angle with broad hairy lobe; valva constricted slightly | <i>R. pulchra</i> |
| 3. Socius ovate; cucullus with short clubbed process ventrally | <i>R. ovata</i> sp. n. |
| - Socius long and narrow; cucullus with slender process ventrally | 4 |
| 4. Uncus with slightly broader apex; socius about equal in length to uncus | <i>R. orbiculata</i> sp. n. |
| - Uncus with pointed apex; socius obviously longer than uncus | 5 |
| 5. Cucullus with process apically dilated | <i>R. grapholitana</i> |
| - Cucullus with process not apically dilated | 6 |
| 6. Sacculus angle with slender hairy lobe | <i>R. exartemana</i> |
| - Sacculus angle with broad and short hairy lobe | <i>R. lascivana</i> |

***Rhopalovalva catharotorna* (Meyrick, 1935: 53) (*Acroclita*)**

Material. 1♂, Jixian (40°02' N, 117°24' E), Tianjin, 550 m, 23.vi.2001, leg. Houhun Li; 1♀, same data, but 510 m, 16.viii.1997.

Remarks. Wingspan 12.0 mm. The species was treated and transferred to *Rhopalovalva* by Diakonoff (1973: 629). It is known to occur in China (Tianjin, Shanghai, Zhejiang, Taiwan) and Japan.

***Rhopalovalva exartemana* (Kennel, 1901: 260) (*Acroclita*)**

Remarks. The species was transferred to *Rhopalovalva* by Kuznetsov (1964: 885) and is recorded from China (Northeast part), Korea, Japan, and Russia (Far East).

***Rhopalovalva grapholitana* (Caradja, 1916: 60) (*Acroclita*)**

Acroclita cordelia Meyrick, 1935: 52.

Material. 6♂, Wenxian (32°58' N, 104°41' E), Gansu Province, 2000 m, 5.vii.2001, leg. Houhun Li and Xinpu Wang; 1♂, Ziyang County (32°33' N, 108°32' E), Shaanxi Province, 350 m, 21.v.1994, leg. Jin Zhou; 2♂, Gushi County (32°10' N, 115°41' E), Henan Province, 120 m, 16.v.1995, leg. Guangyun Yan.

Remarks. Wingspan 18.0 mm. The species was redescribed and transferred to *Rhopalovalva* by Kuznetsov (1964: 886). It is found in China (Northeast part, Shanghai, Anhui, Jiangxi, Henan, Shaanxi, Gansu), Korea, and Russia (Far East).

***Rhopalovalva lascivana* (Christoph, 1881: 405) (*Eudemis*)**

Material. 1♀, Libo County (25°24' N, 107°52' E), Guizhou Province, 23.v.1998, leg. Qirong Liao.

Remarks. Wingspan 10.5 mm. The species was treated and transferred to *Rhopalovalva* by Kuznetsov (1964: 885). It is distributed in China (Guizhou), Korea, Japan, and Russia (Far East).

***Rhopalovalva pulchra* (Butler, 1879: 79) (*Phoxopteryx*)**

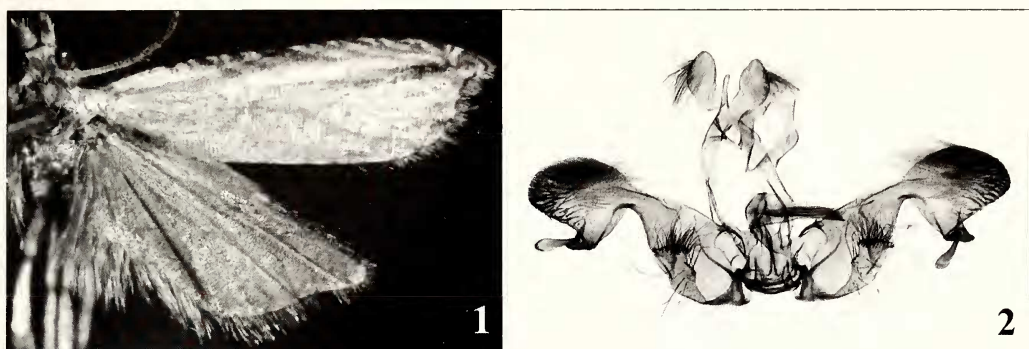
Material. 1♂, Mt. Tianmu (30°26' N, 119°34' E), Zhejiang Province, 350 m, 15.viii.1999, leg. Houhun Li et al.

Remarks. Wingspan 11.5 mm. The species was treated and transferred to *Rhopalovalva* by Kuznetsov (1976: 19). It is known from China (Zhejiang), Korea, Japan, and Russia (Far East).

Rhopalovalva ovata* sp. n.*(Figs. 1, 2)**

Material. Holotype ♂, Sangzhi County (29°23' N, 110°10' E), Hunan Province, 1250 m, 13.viii.2001, leg. Houhun Li & Xinpu Wang, genitalia slide no. ZAH03773.

Description. Wingspan 14.0 mm. Vertex with brown scales between antennae. Antenna brown. Labial palpus white mixed with brown; second segment with long scales; third segment projecting forward. Thorax brown; tegula with basal half light



Figs. 1–2. *Rhopalovalva ovata* sp. n. 1. Adult (♂). 2. Male genitalia.

brown, apical half grey. Forewing pale yellow, without distinct spots and fasciae; apex protruded, outer margin concave below apex; costa with eight pairs of grey streaks ranging from 1/5 to apex, apical five pairs running to termen below apex; cilia pale yellow. Hindwing and cilia grey. Foreleg light brown; midleg and hindleg grey, with light brown scales on tarsi.

Male genitalia. Tegumen posteriorly with long V-shaped lateral sclerite supporting tuba analis. Uncus slender, thin, with slightly thinner apex; socius nearly ovate, setose, longer than uncus. Valva broad at base; neck distinct; sacculus angle with short and broad, straight-ended setose lobe directed dorsad; cucullus somewhat elliptic, setose, with short marginal spines and short clubbed process on triangular projection ventrally. Aedeagus thin, conical; with numerous cornuti.

Female. Unknown.

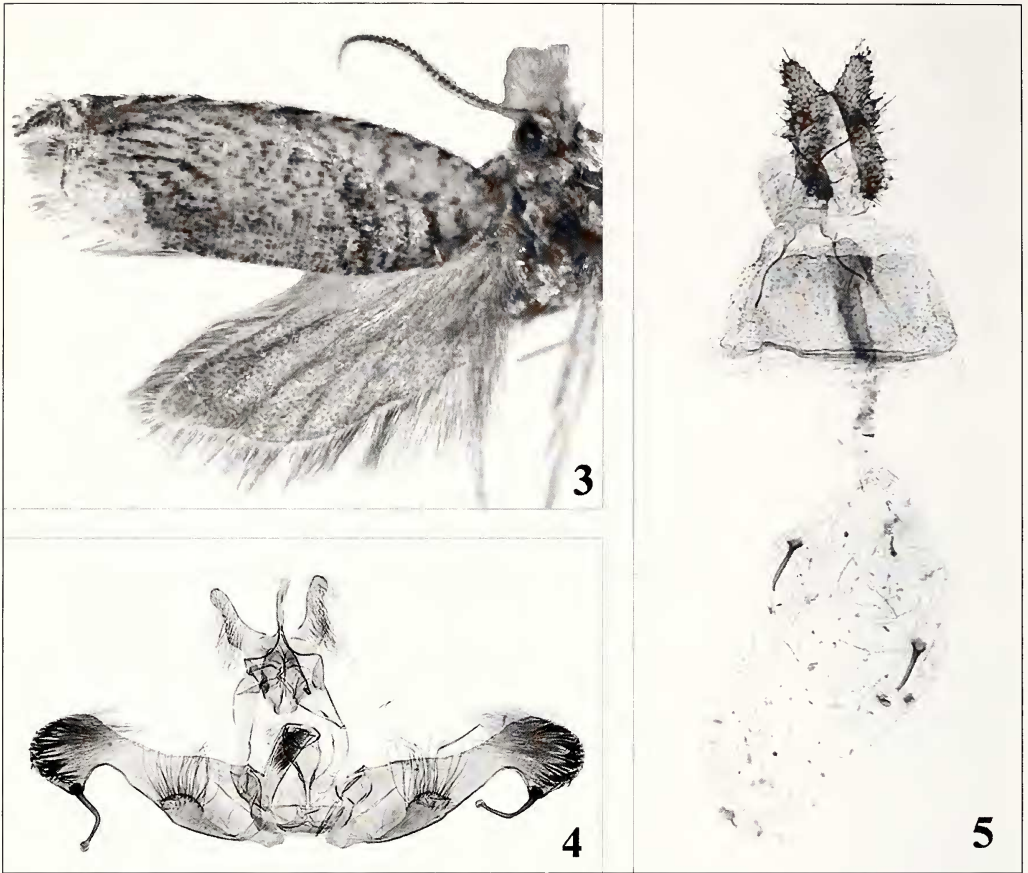
Diagnosis. This species is different from any other species of the genus in having the socius nearly ovate and the cucullus with a short clubbed process on a triangular projection ventrally; in the other species the socius is long and narrow and the cucullus bears a spine or slender process ventrally.

Derivatio nominis. The specific name is derived from the Latin “*ovatus*” (oval), referring to the nearly ovate socius in the male genitalia.

***Rhopalovalva orbiculata* sp. n. (Figs. 3, 4, 5)**

Material. Holotype ♂, Mt. Mao'er (25°53' N, 110°25' E), Guangxi Province, 1100 m, 20.iv.2002, leg. Shulian Hao & Huaijun Xue, genitalia slide no. ZAH03720. Paratypes: 1♂, same data as holotype; 1♀, Mt. Fanjing (27°55' N, 100°41' E), Guizhou Province, 1300 m, 2.viii.2001, Houhun Li & Xinpu Wang; 1♂, 1♀, Xishui County (28°19' N, 106°12' E), Guizhou Province, 1200 m, 1.vi.2000, Yanli Du.

Description. Wingspan 10.0–12.0 mm. Vertex with brown scales. Antenna brown. Labial palpus white mixed with brown; second segment with long scales; third segment minute, concealed in scales of second segment. Thorax fulvous; tegula with basal half light brown, apical half grey. Forewing fulvous, with dark brown transverse lines; apex strongly protruded, falcate; outer margin deeply concave below apex; costa with seven pairs of grey streaks, apical two pairs meeting with each other and running



Figs. 3–5. *Rhopalovalva orbiculata* sp. n. 3. Adult, ♀. 4. Male genitalia. 5. Female genitalia.

to termen below apex; basal 1/3 of dorsum with four inconspicuous transverse fasciae; tornal marking elliptic, yellow; cilia grey. Hindwing and cilia grey. Legs pale white, with brown scales on tarsi. Abdomen light brown.

Male genitalia. Uncus somewhat clubbed, setose, with apex slightly broadened; socius oblong, broader at base, gradually narrowed beyond middle, as long as uncus, setose. Valva broad at base; neck only slightly narrower than base; sacculus with short, apically rounded setose lobe directed dorsad; cucullus nearly ovate, setose, ventrally with slender process roundly dilated distally. Aedeagus thin, tubular; with numerous cornuti.

Female genitalia. Papillae anales long and narrow, setose. Posterior apophysis slightly shorter than anterior apophysis, both shorter than papillae anales. Ostium opening on posterior margin of 7th sternite. Antrum long, about half length of ductus bursae. Ductus bursae slender; ductus seminalis originating from near corpus bursae. Corpus bursae irregularly elliptic; two signa slender, spined.

Diagnosis. This species is closely related to *Rhopalovalva lascivana* (Christoph) in external appearance, but differs from the latter in having the uncus slightly broadened apically and the socius about equal in length to the uncus, whereas in the other species the uncus is pointed apically and the socius is much longer than the uncus.

Derivatio nominis. The specific name is derived from the Latin “*orbiculatus*” (meaning round), referring to the cucullus of the male genitalia ventrally bearing a slender process roundly dilated distally .

References

- Butler, A. G. 1879. Illustrations of typical Specimens of Lepidoptera Heterocera in the Collection of the British Museum 3: i–xviii, 1–82, pls. 41–60.
- Byun, B. K., Y. S. Bae & K. T. Park. 1998. Illustrated Catalogue of Tortricidae in Korea (Lepidoptera). – *In*: K. T. Park (ed.), *Insects of Korea* [2], 317 pp. Seoul.
- Caradja, A. 1916. Beitrag zur Kenntnis der geographischen Verbreitung der Pyraliden und Tortriciden des europäischen Faunengebietes, nebst Beschreibung neuerer Formen. – *Deutsche Entomologische Zeitschrift Iris* 30: 1–88, Dresden.
- Christoph, H. 1881. Neue Lepidopteren des Amurgebietes. – *Bulletin de la Société Impériale des Naturalistes de Moscou* 56 (4): 405–436.
- Clarke, J. F. G. 1958. Catalogue of the Type Specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick, vol. 3. – Trustees of the British Museum, 599 pp. London.
- Diakonoff, A. 1973. The South Asiatic Olethreutini (Lepidoptera, Tortricidae). – Brill, Leiden, pp. 1–700, pls. 1–15.
- Kawabe, A. 1982. Tortricidae. – *In*: H. Inoue et al. (eds.), *Moths of Japan* 1: 955 pp, *ibidem* 2: 522 pp. Tokyo.
- Kennel, J. 1901. Neue Wickler des palaearktischen Gebietes. – *Deutsche Entomologische Zeitschrift Iris* 13 (1900) 2: 205–305.
- Kennel, J. 1916. Die Palaearktischen Tortriciden. – *Zoologica* 21: 398–545, pls. 17–20.
- Kuznetsov, V. I. 1964. New genera and species of leaf-rollers (Lepidoptera, Tortricidae) from the Far East. – *Entomologicheskoe Obozrenie* 43 (4): 873–889.
- Kuznetsov, V. I. 1976a. Leafrollers of the tribe Eucosmini of the southern part of the Far East. – *Turky Zoologicheskogo Instituta, Leningrad* 62: 70–108.
- Kuznetsov, V. I. 1976b. New species and subspecies of the leafrollers (Lepidoptera, Tortricidae) of the fauna of the Palearctic. – *Trudy Zoologicheskogo Instituta, Leningrad* 64: 3–33.
- Kuznetsov, V. I. 2001. Tortricoidae. – *In*: Ler, D. A. (ed.), *Key to the insects of Russian Far East*. vol. 5. Trichoptera and Lepidoptera. Pt. 3. – Vladivostok Dal’nauka, 621 pp.
- Liu, Y. Q. & G. W. Li. 2002. *Fauna Sinica, Insecta, Vol. 27, Lepidoptera, Tortricidae*. – Chinese Science Press, 463 pp. Beijing.
- Meyrick, E. 1935. *In*: Caradja, A. & E. Meyrick, 1935. *Materialien zu einer Microlepidopteren Fauna der chinesischen Provinzen Kiangsu, Chekiang und Hunan*. 96 pp. Berlin.
- Oku, T. 1974. Some new species of Olethreutinae (Lepidoptera, Tortricidae) from Japan. – *Kontyû* 42 (2): 127–132.
- Razowski, J. 1971. The type specimens of the species of some Tortricidae (Lepidoptera). – *Acta zoologica cracoviensia* 15 (10): 463–541.
- Razowski, J. 1989. The genera of Tortricidae (Lepidoptera). Part II: Palearctic Olethreutinae. – *Acta zoologica cracoviensia* 32 (7): 107–328.
- Razowski, J. 1999. Catalogue of the species of Tortricidae. Part V: Palearctic Eucosmina and Enarmonina (Insecta: Lepidoptera). – *Shilap Revista de Lepidoptera* 27 (108): 437–506.